@T/PTO 07 DEC 2004

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau





(43) International Publication Date 24 December 2003 (24.12.2003)

PCT

(10) International Publication Number WO 03/107336 A1

(51) International Patent Classification7:

PCT/IB03/02411 (21) International Application Number:

(22) International Filing Date: 5 June 2003 (05.06.2003)

(25) Filing Language:

English

G11B 7/09

(26) Publication Language:

English

(30) Priority Data: 02077295.0

12 June 2002 (12.06.2002)

(71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventor; and

(75) Inventor/Applicant (for US only): SPRUIT, Johannes, H., M. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(74) Agent: DEGUELLE, Wilhelmus, H., G.; Philips Intellectual Property & Standards, Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

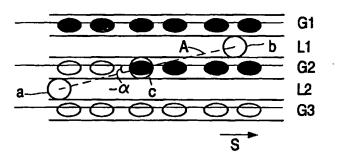
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

R

(54) Title: OPTICAL SCANNING DEVICE



(57) Abstract: A method of scanning an optical recording medium having data storage regions arranged in generally concentrically arranged track sections therein, the method comprising rotating the optical recording medium such that the disk moves in a spinning direction (S) with respect to a scanning spot, and maintaining tracking in a radial sense using a push-pull radial error signal generated by detecting push-pull signals from at least three radiation spots formed on the disk, a main spot (c), a forward spot (a) and a rear spot (b), to move the spots in a radial scanning direction (R) during a plurality of rotations of the disk, wherein the forward spot scans the optical recording medium in a position which is tangentially offset from the main spot in a direction opposite to the spinning direction, and the rear spot scans the optical recording medium in a position which is tangentially offset from the main spot in a direction coinciding with the spinning direction, characterized in that the method comprises positioning the three radiation spots with radial offsets such that the forward spot is located in a position which is radically offset from the main spot in a direction coinciding with the radial scanning direction, and such that the rear spot is located in a position which is radically offset from the main spot in a direction opposite to that of the radial scanning direction.

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G11B7/09

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, IBM-TDB, WPI Data

Citation of document, with indication, where appropriate, of the relevant passages	Relevant to daim No.
WO 02 17311 A (BUECHLER CHRISTIAN ;ZUCKER FRIEDHELM (DE); THOMSON LICENSING SA (F) 28 February 2002 (2002-02-28) page 5 -page 27; figures 1-6	1-4
EP 0 745 982 A (PIONEER ELECTRONIC CORP) 4 December 1996 (1996-12-04) page 7 -page 8; figures 4,5	1-4,14
EP 0 865 036 A (RICOH KK) 16 September 1998 (1998-09-16) column 4; figure 1B	1,14
EP 0 698 880 A (NIPPON CONLUX CO LTD) 28 February 1996 (1996-02-28) column 7 -column 8; figure 2 -/	1,14
	WO 02 17311 A (BUECHLER CHRISTIAN; ZUCKER FRIEDHELM (DE); THOMSON LICENSING SA (F) 28 February 2002 (2002-02-28) page 5 -page 27; figures 1-6 EP 0 745 982 A (PIONEER ELECTRONIC CORP) 4 December 1996 (1996-12-04) page 7 -page 8; figures 4,5 EP 0 865 036 A (RICOH KK) 16 September 1998 (1998-09-16) column 4; figure 1B EP 0 698 880 A (NIPPON CONLUX CO LTD) 28 February 1996 (1996-02-28) column 7 -column 8; figure 2

X Further documents are listed in the continuation of box C.	X Patent family members are listed in annex.
Special categories of cited documents: A* document defining the general state of the art which is not considered to be of particular relevance E* earlier document but published on or after the international filing date Coument which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) O* document referring to an oral disclosure, use, exhibition or other means P* document published prior to the international filing date but later than the priority date claimed	 "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family
Date of the actual completion of the international search 6 November 2003	Date of malling of the international search report 14/11/2003
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Authorized officer Damp, S

INTERNATIONAL SERCH REPORT

Internatio atlon No
PCT/IB 03/02411

		PC1/1B 03/02411								
C.(Continu	(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT									
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.								
Х	PATENT ABSTRACTS OF JAPAN vol. 013, no. 269 (P-888), 21 June 1989 (1989-06-21) -& JP 01 060826 A (FUJITSU GENERAL LTD), 7 March 1989 (1989-03-07) abstract; figure 2	1,14								
X	PATENT ABSTRACTS OF JAPAN vol. 013, no. 253 (P-883), 13 June 1989 (1989-06-13) -& JP 01 050247 A (FUJITSU GENERAL LTD), 27 February 1989 (1989-02-27) abstract; figure 4	1,14								

INTERNATIONAL STARCH REPORT

Internation No
PCT/IB 03702411

Patent document dted in search report		Publication date		Patent family member(s)	Publication date
WO 0217311	Α .	28-02-2002	DE AU WO	10041569 A1 7981701 A 0217311 A1	07-03-2002 04-03-2002 28-02-2002
شه بدا الشراطة عن سالت جي ورب عرب اسباس من رس			EP	1312082 A1	21-05-2003
EP 0745982	Α	04-12-1996	JP	8329490 A	13-12-1996
			DE	69600453 D1 69600453 T2	27-08-1998 04-03-1999
			DE Ep	69600453 T2 0745982 A2	04-03-1999
			US	5708636 A	13-01-1998
				,	
EP 0865036	Α	16-09-1998	JP	3402997 B2	06-05-2003
	••		JP	10255315 A	25-09-1998
			US	6128259 A	03-10-2000
			DE	69817423 D1	02-10-2003
			EP	0865036 A2	16-09-1998
EP 0698880	Α	28-02-1996	JP	8063749 A	08-03-1996
	• •		CA	2156115 A1	27-02-1996
			CN	1139797 A ,B	08-01-1997
			DE	69524008 D1	03-01-2002
			DE	69524008 T2	25-07-2002
			EP	0698880 A2	28-02-1996 01-06-1999
			US 	5909418 A	
JP 01060826	A	07-03-1989	JP	1907654 C	24-02-1995
J. 010000L0			JP	6036251 B	11-05-1994
JP 01050247	Α	27-02-1989	NONE		